Mercury poisoning is a global concern due to its highly toxic, carcinogenic and non-biodegradable nature. The major sources of mercury pollutions are the waste of various industries such as chloro-alkali, rubber processing, fertilizer, battery, pulp and paper, mining, combustion, etc. Though conventional methods such as precipitation, coagulation, electrodialysis, adsorption, solvent extraction, chemical oxidation and reduction and ion exchange have been used for mercury separation, liquid membrane (LM) based separation process promises an effective separation of metal ions when the amount of ion in the solution is trace [1].

This study presents an experimental investigation on the facilitated transport of mercury through supported liquid membrane (SLM) containing dioxime derivatives N,N’-bis[1-bifenil-2-hidroksiimino-2-(4-asetilanilino)-1-etiliden]-1,3-propandiamin and N,N-bis[1-(4-fenilfenil)-2-hidroksiimino-2-(4-kloroanilino)-1-etiliden]-1,3-propandiamin as ion carrier. The Celgard 2500 membrane was used as support. The morphology of SLMS was characterized using scanning electron microscopy (SEM), atomic force microscopy (AFM) and fourier transform infrared spectroscopy (FTIR). The SEM, AFM and FTIR images, comparing the Celgard 2500 membrane support to SLMs, indicate that the surface morphologies of the membranes are different. The fundamental parameters, such as feed phase pH and concentration, strip phase concentration, carrier concentration, etc., affecting the transfer of mercury through the SLM were studied. As a result of the donnan dialysis experiments recovery factor values (RF), flux values (J) and permeability coefficient values (P) of Hg(II) ion were calculated. The highest RF and J values were obtained when the feed phase concentration of 1x10^{-3} M Hg(NO_3)_2, the strip phase concentration of 0.1 M HCl and different valences ions were absent in the feed phase.